AMENDED CLAIMS

Claim 1 has been amended as follows:

1. (Twice Amended) A method of conductively cooling a heat-generating electronic component having an operating temperature range above normal room temperature and a first heat transfer surface disposable in thermal adjacency with a second heat transfer surface of a thermal dissipation member to define an interface therebetween, said method comprising the steps of:

(a) providing a thermally-conductive material which is form-stable at normal room temperature in a first phase and conformable in a flowable second phase to substantially fill said interface, said material having a transition temperature from said first phase to said second phase within the operating temperature range of said electronic component, and said material consisting essentially of at least one resin or wax component or mixture thereof blended with at least one thermally-conductive filler;

(b) forming said material into a self-supporting and free-standing film layer, said layer consisting essentially of said material and having a thickness of from about 1-10 mils;

(c) applying said layer to one of said heat transfer surfaces;

(d) disposing said heat transfer surfaces in thermal adjacency to define said interface; and

(e) energizing said electronic component effective to heat said layer to a temperature which is above said phase transition temperature.

2. (Pending) The method of claim 1 further comprising an additional step between steps (d) and (e) of applying an external force to at least one of said heat transfers defining said interface.

3. (Pending) The method of claim 1 wherein said thermal dissipation member is a heat sink or a circuit board.

4. (Pending) The method of claim 1 wherein said layer is applied in step (c) to the heat transfer surface of said electronic component.

5. (Pending) The method of claim 1 wherein said self-supporting layer is formed in step (b) by coating a film of said material onto a surface of a release sheet, and wherein said layer is applied in step (c) by adhering said film to one of said heat transfer and removing said release sheet to expose said film.

6. (Pending) The method of claim 1 wherein said material is provided in step (a) as consisting essentially of a blend of:

(i) from about 20 to 80% by weight of a paraffinic wax component having a melting temperature of from about 60-70°C; and

(ii) from about 20 to 80% by weight of one or more thermally-conductive fillers.

7. (Pending) The method of claim 6 wherein said material has a phase transition temperature of from about 60-80°C.

8. (Pending) The method of claim 6 wherein said one or more thermally-conductive fillers is selected from the group consisting of boron nitride, alumina, aluminum oxide, aluminum nitride, magnesium oxide, zinc oxide, silicon carbide, beryllium oxide, and mixtures thereof.

Claim 9 has been amended as follows:

9. (Twice Amended) A thermally-conductive interface for interposition between a heat-generating electronic component having an operating temperature range above normal room temperature and a first heat transfer surface disposable in thermal adjacency with a second heat transfer surface of a thermal dissipation member, said interface comprising a self-supporting and free-standing film layer having a thickness of from about 1-10 mils and consisting essentially of a thermally-conductive material which is form-stable at normal room temperature in a first phase and substantially conformable in a flowable second phase to said interface surfaces, said material having a transition temperature from said first phase to said second phase within the operating temperature range of said electronic component, and said material consisting essentially of at least one resin or wax component or mixture thereof blended with at least one thermally-conductive filler.

10. (Pending) The interface of claim 9 which is coated as a film onto a surface of a release sheet.

11. (Pending) The interface of claim 9 wherein said material consisting essentially of a blend of:

(a) from about 20 to 80% by weight of a paraffinic wax component having a melting temperature of from about 60-70°C; and

(b) from about 20 to 80% by weight of one or more thermally-conductive fillers.

12. (Pending) The interface of claim 11 wherein said material has a phase transition temperature of from about 60-80°C.

13. (Pending) The interface of claim 11 wherein said one or more thermally-conductive fillers is selected from the group consisting of boron nitride, alumina, aluminum oxide, aluminum nitride, magnesium oxide, zinc oxide, silicon carbide, beryllium oxide, and mixtures thereof.

14. (Allowed) A method of conductively cooling a heat-generating electronic component having an operating temperature range above normal room temperature and a first heat transfer surface disposable in thermal adjacency with a second heat transfer surface of a thermal dissipation member to define an interface therebetween, said method comprising the steps of:

(a) providing a thermally-conductive material which is form-stable at normal room temperature in a first phase and conformable in a second phase to substantially fill said interface, said material having a transition temperature from said first phase to said second phase within the operating temperature range of said electronic component and comprising a blend of:

(i) from about 25 to 50% by weight of an acrylic pressure sensitive adhesive component having a melting temperature of from about 90-100°C;

(ii) from about 50 to 75% by weight of an α-olefinic, thermoplastic component having a melting temperature of from about 50-60°C; and

(iii) from about 20 to 80% by weight of one or more thermally-conductive fillers;

(b) forming said material into a self-supporting layer;

(c) applying said layer to one of said heat transfer surfaces;

(d) disposing said heat transfer surfaces in thermal adjacency to define said interface; and

(e) energizing said electronic component effective to heat said layer to a temperature which is above said phase transition temperature.

15. (Allowed) The method of claim 14 wherein said material has a phase transition temperature of from about 70-80°C.

16. (Allowed) The method of claim 14 wherein said one or more thermally-conductive fillers is selected from the group consisting of boron nitride, alumina, aluminum oxide, aluminum nitride, magnesium oxide, zinc oxide, silicon carbide, beryllium oxide, and mixtures thereof.

17. (Allowed) A thermally-conductive interface for interposition between a heat-generating electronic component having an operating temperature range above normal room temperature and a first heat transfer surface disposable in thermal adjacency with a second heat transfer surface of a thermal dissipation member, said interface comprising a self-supporting layer of a thermally-conductive material which is form-stable at normal room temperature in a first phase and substantially conformable in a second phase to said interface surfaces, said material having a transition temperature from said first phase to said second phase within the operating temperature range of said electronic component, and comprising a blend of:

(a) from about 25 to 50% by weight of an acrylic pressure sensitive adhesive component having a melting temperature of from about 90-100°C;

(b) from about 50 to 75% by weight of an α-olefinic, thermoplastic component having a melting temperature of from about 50-60°C; and

(c) from about 20 to 80% by weight of one or more thermally-conductive fillers.

18. (Allowed) The interface of claim 17 wherein said material has a phase transition temperature of from about 70-80°C.

19. (Allowed) The interface of claim 17 wherein said one or more thermally-conductive fillers is selected from the group consisting of boron nitride, alumina, aluminum oxide, aluminum nitride, magnesium oxide, zinc oxide, silicon carbide, beryllium oxide, and mixtures thereof.